DOCUMENT RESUME

ED 381 744 CS 012 097

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TITLE A Study of the Effects of Structured Practice and Feedback on Spelling Achievement in Second Graders.
PUB DATE May 95
NOTE 54p.; Exit Research Project, Sam Houston State University.
PUB TYPE Reports - Research/Technical (143) -- Dissertations/Theses - Undetermined (040)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Comparative Analysis; Feedback; Grade 2; *Instructional Effectiveness; Primary Education; *Spelling Instruction; Study Skills; Teacher Attitudes; Teaching Methods
IDENTIFIERS Grapeland Independent School District TX

ABSTRACT

A study explored the effectiveness of adding a daily, structured practice session of weekly spelling words to the traditional pattern of pretesting on Monday, posttesting on Friday. Subjects, 28 second graders from the Grapeland Independent School District (Texas), were divided into control and experimental groups. The experimental group paired up each Tuesday, Wednesday, and Thursday for students to quiz each other on misspelled spelling words. The control group was permitted to devise their own study plan with no in-class time allocated for studying. Averages of all pretest and posttest scores were compared after a 6-week period. After administering a t-test, the scores were found to be similar on the pretest scores and not statistically significant. However, a statistically significant difference was observed on the posttest scores. There was a positive effect on the posttest scores of the experimental group. Findings concur with the opinions of more than half of 20 elementary school teachers who answered a survey of students' spelling habits. Thirteen (65%) of the respondents said they believed students who were allowed a daily, structured class time for studying would score higher than students who studied on their own time. (Contains 12 references, and 15 tables and six figures of data. Appendixes present the cover letter and questionnaire, the spelling word list, and additional tables and figures of data.) (Author/RS)

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ED 381 744

A STUDY OF THE EFFECTS OF STRUCTURED PRACTICE AND FEEDBACK ON SPELLING ACHIEVEMENT IN SECOND GRADERS

by

Debora Pennington

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A research paper

submitted in partial fulfillment

of the requirement for the course

Methods of Research

Sam Houston State University

May 1995

CS012097

Abstract

This study explores the effectiveness of adding a daily, structured practice session of weekly spelling words to the traditional pattern of pretesting on Monday, posttesting on Friday. Twenty-eight second graders participated with 14 children in each group. The control group added a 20-minute daily practice schedule to study words misspelled on the pretest while the control group did not. The experimental group paired up each Tuesday, Wednesday and Thursday for students to quiz each other on misspelled spelling words. The control group was permitted to devise their own study plan with no in-class time allocated for studying. Averages of all pretest and posttest scores were compared after a six-week period. After administering a t-test, using an alpha level of .05, the scores were found to be similar on the pretest scores and not statistically significant. However, a statistically significant difference was observed on the post-test scores. There was a positive effect on the post-test scores of the treatment group and the null hypothesis was rejected. The conclusions seemed to concur with the opinions of more than half of twenty elementary school teachers who answered a survey of students' spelling habits. Thirteen (65%) of the respondents said they believed students who were allowed a daily, structured class-time for studying would score higher than students who studied on their own time.

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Chapter 1

INTRODUCTION

General Information

An assortment of instructional methods have emerged from traditional methods of teaching spelling with new perspectives in processing information. Some researchers believe that one instructional component that is common to effective techniques is that of immediate, corrective feedback (Gettinger, 1993, p. 39). The effectiveness of feedback may stem, in part, from the enhancement of memory, attention and discrimination necessary to master spelling patterns.

Regardless of the many theoretical explanations and spelling techniques available to teachers, perhaps spelling difficulties may persist simply because regular classroom instruction does not include sufficient time to master correction spelling by providing daily, structured practice sessions that include feedback.

Statement of the Problem

Some students perform better than others on a spelling test.

Purpose

The purpose of this study is to explore the effectiveness of adding a daily structured practice session of weekly spelling words to the traditional instructional pattern of pretesting on Monday, posttesting on Friday.

Importance of the Study

If data suggests there is a significant improvement of students' performance after adding a systematic practice procedure, then the school district may want to encourage elementary school teachers to incorporate the technique into their weekly course schedules.

Definition of Terms

1. Feedback. Refers to a response of suggestions to a proposal, action or process.

2. Structured Practice. Refers to an organized design where students pair up each day to repeatedly drill each other on misspelled words for that week's spelling test.

3. Traditional Methods of Teaching Spelling. Refers to presenting a list of words to students on Monday and testing them on Friday.

Null Hypothesis

Spelling scores of students incorporating daily, structured practice sessions do not significantly differ from scores of students allowed to devise their own study methods.

Limitations and Delimitations

This study will be limited to Grapeland Independent School District (GISD). It is delimited to a six-week period beginning Monday, February 6, and ending March 17, 1995. This study is also delimited to 28 second grade students and two teachers at one elementary school.

Assumptions

1. The Grapeland Elementary School second grade students used are representative of other Grapeland Independent School District second-graders.

2. The teachers used are representative of other teachers in the Grapeland Independent School District.

Chapter 2

REVIEW OF RELATED LITERATURE AND RESEARCH

Research on spelling ability has witnessed a vigorous but fragmented growth in the last twenty years (Brown, 1990, p. 365). Many studies on elementary students tend to focus on second-graders, as this is the grade where formal spelling introduction is typically introduced (Gentry, 1978, p. 89).

A number of children struggle to learn to spell, with some burdened more than others. To this latter group, learning is a tedious chore. The possibility that spelling will someday be a tool instead of a toil does not usually occur to students experiencing difficulties (Gerber & Hall, 1987, p. 34).

Despite the actuality that teachers are familiar with effective research-based techniques, spelling procedures used in most classrooms are based on textbooks or other commercially prepared materials. The most customary method has been to present students with a list of words on Monday, then testing the pupils on Friday, without any class time permitted for studying (Gettinger, 1993, p. 40).

The reason why this routine continues year after year stems from the fact that teachers usually do not have the time or resources to devise alternative instruction (Cronnell & Humes, 1980, p. 59). Few schools provide study periods devoted to spelling practice (Greene & Petty, 1959, p. 261). Surveys mailed to participants in a 1986 spelling bee indicated that 80% of those responding spent less than 30 minutes per week reviewing for spelling tests, even though most experts recommend between 60 to 75 minutes of study time (Olson, Logan & Lindsey, 1988, p. 154-155). At least 20

minutes per day should be provided for studying spelling words (Hicks, Houston, Cheney & Marquard, 1970, p. 198). Given the obvious high regard historically expressed for excellent spellers, it might be expected that this subject would be one of the foremost developed and most eminent part of the normal elementary school curriculum. Unfortunately, this is not true. Gerber and Hall (1987, p. 34) quote a 1981 study by Mirkin to remark that "teachers spend little time actually teaching spelling."

Cronnell and Humes (1980, p. 59) reviewed that 90% of classroom instruction is based on commercially prepared materials. One of the main arguments against this technique is its lack of feedback because knowing instantly which words were misspelled is vital in learning to spell correctly (Brown, 1990, p. 373).

Data are seldom provided concerning children's performance during their standard classroom spelling assignments. One exception is Gettinger's (1987, p. 40) investigation of children demonstrating improvement in spelling performance when sufficient time is allocated for mastery; feedback is provided that allows students to compare their errors with correct spelling; and practice is student directed to minimize the supervisory time required of teachers. Gettinger (p. 44-45) extends the notion that the superiority of such intervention over more standard procedures raises some questions about the appropriateness of traditional procedures used to teach spelling. When compared to a control group instructed to study on their own time, results revealed that students may benefit from structured time study to achieve maximum performance in spelling.

Immediate feedback is a highly regarded technique evaluated by several researchers, including Hicks, Houston, Cheney and Marquard (1970, p. 200) who acknowledged that it is a well-known contributor to the learning process. Brown (1990, p. 370) agrees that students will benefit by quickly identifying the words they cannot spell and concentrating on just those particular words. He continues by adding that, in grades one through three, this feedback process appears to be effective, easy to administer and deserving of more exploration.

The pairing of students for studying spelling words has been documented to produce better spelling achievement than individual study (Van Oudehoven, van Berkum & Swen-Koopman, 1987, p. 94). A buddy system is also recommended by Gentry and Gillet (1993, p. 99), noting that peer tutoring and cooperative learning are great venues in developing spelling skills. Hildreth (1955, p. 174) also proposed the need for pairing pupils for studying spelling to economize study time by focusing only on the words each student needs to study. Leaving students to study on their own is not an efficient method, as supervised study has proven to be more helpful in eight out of ten cases examined by Pryor and Pittman (1925, p. 16). Results of research generated by Greene and Petty (1959, p. 261) further showed this test-study plan to be the most effective method of teaching spelling. On the other hand, questions have been raised regarding permitting children to grade each other's test papers, as children are prone to be hypercritical, while poor spellers may be embarrassed to have low test scores known to classmates (Hicks, Houston, Cheney & Marquard, 1970, p. 207).

Chapter 3

METHODS AND PROCEDURES

Participants

Two second grade classes from the Grapeland Independent School District participated in this study. The experimental group consisted of 14 students (10 males, five females) and the control group was also composed of 14 students (seven males, eight females). Pupils were chosen using systematic random sampling of all Grapeland I.S.D. second graders after eliminating all special education/learning disabled students from the population.

All teachers of the Grapeland Elementary School were asked to complete a survey of students' spelling habits. Twenty teachers answered and returned the questionnaire.

Apparatus

The pretest and posttest scores of both groups were entered into a Statworks program on a Macintosh computer. The responses to the questionnaire, which consisted of 15 closed questions, were recorded on Scantron 882ES forms and administered into a Scantron data entry terminal.

Procedures

Both teachers were presented with a written description of their condition that consisted of a point-by-point summary of their requirements. Teachers were instructed to test the students each Monday with the same new spelling words. Students were tested without knowing what words would be on the test. On Tuesday, Wednesday and

Thursday, the experimental group was allowed twenty minutes of in-class time to study only the spelling words that were misspelled on Monday. The students in this group were paired together by allowing the students to select a study partner. The two pupils were directed to study together during the in-class time for the next six weeks. The students were instructed to test each other on misspelled words continuously during the 20-minute sessions. If one of the students were absent during study time, the partner was instructed to write the misspelled words continuously during the 20-minute session.

The students in the control group were not allowed any in-class time to study spelling words. These students were allowed to devise their own study methods and encouraged to study at home between the pretest on Monday and posttest on Friday.

All students were given a posttest on Friday. Posttest and pretest scores were recorded weekly for each student for six consecutive weeks. Twenty-one words were given each with a possible low score of zero and a high score of 105. Teachers were informed to disregard the pretest and posttest scores for any week in which a student missed taking either test.

A t-test was administered to test for significance in pretest and posttest scores of both groups. An alpha level of .05 was chosen as the significance level. The answers to the survey of school teachers were run through a Scantron Data Entry Terminal for frequency and percentage data.

Chapter 4

PRESENTATION AND ANALYSIS OF DATA

A t-test was used to compare the pretest and posttest averages of the experimental and control groups. An alpha level of .05 was used in all tests.

The pretest scores from the experimental group consisted of 80 observations. One child was absent for four consecutive weeks so his scores for those weeks were not recorded. Scores produced a mean of 34.75, a range of 70, and a median of 35. The standard deviation was 18.05 and the coefficient of variation was 51.95. Pretest scores from the control group consisted of 84 observations with a mean of 37.02, a range of 75 and a median of 35. The standard deviation was established as 17.82 with a coefficient of variation of 48.13. Pretest scores were not found to be statistically significant. Table 1 exhibits the t score was -0.81, 162 degrees of freedom and a significance of 0.418.

The posttest scores from the experimental group also consisted of 80 observations with a mean of 97.19, a range of 45, and a median of 100. The standard deviation was 9.34 with a coefficient of variation of 9.61. The posttest scores from the control group consisted of 84 observations with a mean of 81.67, a range of 80 and a median of 87.50. The standard deviation was 18.75 with a coefficient of variation of 22.95. The posttest scores were found statistically significant using an alpha level of .05 and the null hypothesis was rejected. Table 2 shows a t score of 6.66, 162 degrees of freedom and a significance of zero.

The following are frequency and percentage results for each of the variables on

the questionnaire regarding spelling study habits. The frequencies and percentages, shown in Table 3, are a result of running the Scantrons (882ES) through the Scantron Data Entry Terminal for the IBM computer.

1. Twenty respondents (100%) were females.

2. Six respondents (30%) were between the ages of 20-40; 12 (60%) were between the ages of 41-60; and two respondents (10%) were 60+ years of age.

3. Fifteen respondents (75%) held bachelors' degrees and five (25%) held masters' degrees.

4. Ten respondents (50%) primarily taught grades 1-2; six (30%) taught grades 3-4; and four (20%) taught grades 5-6.

5. Eight respondents (40%) had taught in public schools for 0-10 years; ten (50%) had taught 11-20 years and two (10%) had taught 20+ years.

6. Twenty respondents (100%) had offered class time for studying spelling words in the past six weeks.

7. Thirteen respondents (65%) think students who are allowed to study spelling during class time will score higher than those who study on their own. Seven respondents (35%) said they did not think students would score higher if allowed to study spelling during class time.

8. Six respondents (30%) have suggested commercial products such as "Hooked on Phonics" and fourteen (70%) have not.

9. Fourteen respondents (70%) conclude commercial products are helpful spelling aides; six (30%) do not.

10. Three (15%) respondents had assigned flash cards for spelling words in the past six weeks. Seventeen (85%) had not assigned flash cards.

11. Fourteen respondents (70%) thought flash cards are effective study methods; six (30%) did not.

12. Eighteen respondents (90%) had allocated writing assignments with spelling words in the past six weeks; two (10%) had not.

13. Nineteen respondents (95%) thought writing assignments are effective study methods; one (5%) did not.

14. Seventeen respondents (85%) had assigned students to re-write misspelled words in the past six weeks; three (15%) had not.

15. Twenty respondents (100%) maintained the method of re-writing spelling words is an effective study habit.

Table 1. A comparison of experimental and control groups' pretest scores.

Data File: SPELLING TEST STUDY

Independent Samples...

Variable:	EXP PRE TEST	CON PRE TEST
Mean:	34.75	37.02
Std. Deviation:	18.05	17.82
Observations:	80	84

t-statistic:	-0.81	Hypothesis:
Degrees of Freedom:	162	Ho: $\mu 1 = \mu 2$
Significance:	0.418	Ha: $\mu 1 \neq \mu 2$

Table 2. A comparison of experimental and control groups' posttest scores.

Data File: SPELLING TEST STUDY

Independent Samples...

Variable:	EXP POST TST	CON POST TST
Mean:	97.19	81.67
Std. Deviation:	9.34	18.75
Observations:	80	84

t-statistic:	6.66	Hypothesis:
Degrees of Freedom:	162	Ho: $\mu 1 = \mu 2$
Significance:	0.000	Ha: $\mu 1 \neq \mu 2$

Table 3. Survey of teachers on student spelling habits.

Total Responding: 20 NR= No Response

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	0	20	0	0	0	0	20	2.0
	Percent:	0%	100%	0%	0%	0%			
2.	Number:	6	12	2	0	0	0	20	1.8
	Percent:	30%	60%	10%	0%	0%			
3.	Number:	15	5	0	0	0	0	20	1.3
	Percent:	75%	25%	0%	0%	0%			
4.	Number:	10	6	4	0	0	0	20	1.7
	Percent:	50%	30%	20%	0%	0%			
5.	Number:	8	10	2	0	0	0	20	1.7
	Percent:	40%	50%	10%	0%	0%			
6.	Number:	20	0	0	0	0	0	20	1.0
	Percent:	100%	0%	0%	0%	0%			
7.	Number:	13	7	0	0	0	0	20	1.4
	Percent:	65%	35%	0%	0%	0%			
8.	Number:	6	14	0	0	0	0	20	1.7
	Percent:	30%	70%	0%	0%	0%			
9.	Number:	14	6	0	0	0	0	20	1.3
	Percent:	70%	30%	0%	0%	0%			
10.	Number:	3	17	0	0	0	0	20	1.9
	Percent:	15%	85%	0%	0%	0%			
11.	Number:	14	6	0	0	0	0	20	1.3
	Percent:	70%	30%	0%	0%	0%			
12.	Number:	18	2	0	0	0	0	20	1.1
	Percent:	90%	10%	0%	0%	0%			
13.	Number:	19	1	0	0	0	0	20	1.1
	Percent:	95%	5%	0%	0%	0%			
14.	Number:	17	3	0	0	0	0	20	1.2
	Percent:	85%	15%	0%	0%	0%			
15.	Number:	20	0	0	0	0	0	20	1.0
	Percent:	100%	0%	0%	0%	0%			

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Chapter 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study found a significant difference in the averaged posttest spelling scores of students allowed a daily structured, in-class study period when compared to the mean scores of students who were not given the same study time. There was no significant difference in the pretest mean scores of the two groups.

Thirteen (65%) of the 20 teachers surveyed said that students would probably score higher on spelling tests if allowed to study words during class time. All 20 respondents (100%) had offered time for studying spelling words in the past six weeks.

Conclusions

Adding class time to study spelling words seems to be an effective method of improving test scores. Instructing the students to point out each other's spelling errors may have contributed directly to a better knowledge of the spelling of words and, consequently, to a higher score on the spelling test. This knowledge seems particularly valuable for assisting students who have a difficult time devising their own study methods, especially if study time is not set aside at home by a parent or guardian. In addition, this cooperation between students may offer a solution for big classes, where it is difficult for teacher to give students individual attention.

Recommendations

While the experimental group did show a significant difference in spelling scores, it is imperative to retest these students at a later date on the same spelling words to see if the difference was due to factors other than the treatment. Memorization and practice may have played a part in the difference in score averages. If, in fact, the latter scores are also found to be significantly different, it can be concluded the the in-class study time is an effective method for improving test scores.

This being the case, I would recommend this method to other teachers of Grapeland Elementary School and ask them to consider incorporating it into their class schedules during the next school year. Further score comparisons are deserving of more investigation.

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APPENDIXES

APPENDIX A

COVER LETTER AND QUESTIONNAIRE

From the desk of

DEBORA PENNINGTON

14027 Torrey Village Drive
Houston, Texas 77014
(713) 580-5053

February 22, 1995

Grapeland Elementary School
Box 249
Grapeland, Texas 75844

To the teachers of Grapeland Elementary School:

As educators, I am sure you are aware of a variety of positions and applied techniques for enhancing children's spelling performances. As a graduate student, I am currently in the process of researching one particular instructional component that allows students to study spelling words in a structured manner during class time. I am especially interested in obtaining your opinions on this study method as well as several others.

Please take a few moments to answer the attached survey and place it in Donna Larkin's school mailbox by March 1, 1995. In order to assure complete confidentiality, I must ask that you do not sign your name to the survey sheet. All information will be reported as grouped data.

The results of this research will be available for your perusal. Should you have any questions regarding this survey, I can be reached at the address and phone number listed at the top of this page.

I would like to thank you in advance for your cooperation.

Sincerely,

Debora Pennington

SURVEY OF
SPELLING STUDY HABITS

Directions: Please circle only one answer for each question.

	A	B	C
1. Sex	Male	Female	
2. Age	20-40	41-60	60+
3. Highest Degree	Bachelor	Master	Other
4. Grade level you primarily teach	1-2	3-4	5-6
5. Years you have taught in public schools	0-10	11-20	20+

6. Have you offered class time for studying spelling words in the past six weeks?	Yes	No
7. Do you think students who are allowed to study spelling during class time will score higher than those who study on their own?	Yes	No
8. Have you ever suggested any commercial products such as "Hooked on Phonics"?	Yes	No
9. Do you think commercial products are helpful spelling aides?	Yes	No
10. Have your students made flash cards for spelling words during class time in the past six weeks?	Yes	No
11. Do you think the flash card method of studying is effective?	Yes	No
12. In the past six weeks, have you allocated writing assignments with the spelling words, such as sentences or stories?	Yes	No
13. Do you think this writing method of of studying spelling words is effective?	Yes	No
14. In the past six weeks, have you assigned students to re-write their misspelled words?	Yes	No
15. Do you think this method of re-writing spelling words is effective?	Yes	No

Please return to Donna Larkin by Friday, March 3, 1995.

APPENDIX B

FREQUENCY AND PERCENTAGE TABLES

Table 4. Survey of teachers in grades 1-2 concerning student spelling habits.

Total Responding: 10 NR=No Response

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	0	10	0	0	0	0	10	2.0
	Percent:	0%	100%	0%	0%	0%			
2.	Number:	4	5	1	0	0	0	10	1.7
	Percent:	40%	50%	10%	0%	0%			
3.	Number:	7	3	0	0	0	0	10	1.3
	Percent:	70%	30%	0%	0%	0%			
4.	Number:	10	0	0	0	0	0	10	1.0
	Percent:	100%	0%	0%	0%	0%			
5.	Number:	3	6	1	0	0	0	10	1.8
	Percent:	30%	60%	10%	0%	0%			
6.	Number:	10	0	0	0	0	0	10	1.0
	Percent:	100%	0%	0%	0%	0%			
7.	Number:	6	4	0	0	0	0	10	1.4
	Percent:	60%	40%	0%	0%	0%			
8.	Number:	2	8	0	0	0	0	10	1.8
	Percent:	20%	80%	0%	0%	0%			
9.	Number:	7	3	0	0	0	0	10	1.3
	Percent:	70%	30%	0%	0%	0%			
10.	Number:	2	8	0	0	0	0	10	1.8
	Percent:	20%	80%	0%	0%	0%			
11.	Number:	7	3	0	0	0	0	10	1.3
	Percent:	70%	30%	0%	0%	0%			
12.	Number:	10	0	0	0	0	0	10	1.0
	Percent:	100%	0%	0%	0%	0%			
13.	Number:	10	0	0	0	0	0	10	1.0
	Percent:	100%	0%	0%	0%	0%			
14.	Number:	9	1	0	0	0	0	10	1.1
	Percent:	90%	10%	0%	0%	0%			
15.	Number:	10	0	0	0	0	0	10	1.0
	Percent:	100%	0%	0%	0%	0%			

Table 5. Survey of teachers in grades 3-4 concerning student spelling habits.

Total Responding: 6 NR=No Response

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	0	6	0	0	0	0	6	2.0
	Percent:	0%	100%	0%	0%	0%			
2.	Number:	1	4	1	0	0	0	6	2.0
	Percent:	17%	67%	17%	0%	0%			
3.	Number:	4	2	0	0	0	0	6	1.3
	Percent:	67%	33%	0%	0%	0%			
4.	Number:	0	6	0	0	0	0	6	2.0
	Percent:	0%	100%	0%	0%	0%			
5.	Number:	2	3	1	0	0	0	6	1.8
	Percent:	33%	50%	17%	0%	0%			
6.	Number:	6	0	0	0	0	0	6	1.0
	Percent:	100%	0%	0%	0%	0%			
7.	Number:	4	2	0	0	0	0	6	1.3
	Percent:	67%	33%	0%	0%	0%			
8.	Number:	3	3	0	0	0	0	6	1.5
	Percent:	50%	50%	0%	0%	0%			
9.	Number:	4	2	0	0	0	0	6	1.3
	Percent:	67%	33%	0%	0%	0%			
10.	Number:	1	5	0	0	0	0	6	1.8
	Percent:	17%	83%	0%	0%	0%			
11.	Number:	5	1	0	0	0	0	6	1.2
	Percent:	83%	17%	0%	0%	0%			
12.	Number:	6	0	0	0	0	0	6	1.0
	Percent:	100%	0%	0%	0%	0%			
13.	Number:	6	0	0	0	0	0	6	1.0
	Percent:	100%	0%	0%	0%	0%			
14.	Number:	5	1	0	0	0	0	6	1.2
	Percent:	83%	17%	0%	0%	0%			
15.	Number:	6	0	0	0	0	0	6	1.0
	Percent:	100%	0%	0%	0%	0%			

Table 6. Survey of teachers in grades 5-6 concerning student spelling habits.

Total Responding: 4 NR=No Response

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	0	4	0	0	0	0	4	2.0
	Percent:	0%	100%	0%	0%	0%			
2.	Number:	1	3	0	0	0	0	4	1.8
	Percent:	25%	75%	0%	0%	0%			
3.	Number:	4	0	0	0	0	0	4	1.0
	Percent:	100%	0%	0%	0%	0%			
4.	Number:	0	0	4	0	0	0	4	3.0
	Percent:	0%	0%	100%	0%	0%			
5.	Number:	3	1	0	0	0	0	4	1.3
	Percent:	75%	25%	0%	0%	0%			
6.	Number:	4	0	0	0	0	0	4	1.0
	Percent:	100%	0%	0%	0%	0%			
7.	Number:	3	1	0	0	0	0	4	1.3
	Percent:	75%	25%	0%	0%	0%			
8.	Number:	1	3	0	0	0	0	4	1.8
	Percent:	25%	75%	0%	0%	0%			
9.	Number:	3	1	0	0	0	0	4	1.3
	Percent:	75%	25%	0%	0%	0%			
10.	Number:	0	4	0	0	0	0	4	2.0
	Percent:	0%	100%	0%	0%	0%			
11.	Number:	2	2	0	0	0	0	4	1.5
	Percent:	50%	50%	0%	0%	0%			
12.	Number:	2	2	0	0	0	0	4	1.5
	Percent:	50%	50%	0%	0%	0%			
13.	Number:	3	1	0	0	0	0	4	1.3
	Percent:	75%	25%	0%	0%	0%			
14.	Number:	3	1	0	0	0	0	4	1.3
	Percent:	75%	25%	0%	0%	0%			
15.	Number:	4	0	0	0	0	0	4	1.0
	Percent:	100%	0%	0%	0%	0%			

Table 7. Survey of teachers with 0-10 years experience.

Total Responding: 8 NR=No Response

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	0	8	0	0	0	0	8	2.0
	Percent:	0%	100%	0%	0%	0%			
2.	Number:	5	3	0	0	0	0	8	1.4
	Percent:	63%	38%	0%	0%	0%			
3.	Number:	8	0	0	0	0	0	8	1.0
	Percent:	100%	0%	0%	0%	0%			
4.	Number:	3	2	3	0	0	0	8	2.0
	Percent:	38%	25%	38%	0%	0%			
5.	Number:	8	0	0	0	0	0	8	1.0
	Percent:	100%	0%	0%	0%	0%			
6.	Number:	8	0	0	0	0	0	8	1.0
	Percent:	100%	0%	0%	0%	0%			
7.	Number:	4	4	0	0	0	0	8	1.5
	Percent:	50%	50%	0%	0%	0%			
8.	Number:	3	5	0	0	0	0	8	1.6
	Percent:	38%	63%	0%	0%	0%			
9.	Number:	6	2	0	0	0	0	8	1.3
	Percent:	75%	25%	0%	0%	0%			
10.	Number:	0	8	0	0	0	0	8	2.0
	Percent:	0%	100%	0%	0%	0%			
11.	Number:	5	3	0	0	0	0	8	1.4
	Percent:	63%	38%	0%	0%	0%			
12.	Number:	6	2	0	0	0	0	8	1.3
	Percent:	75%	25%	0%	0%	0%			
13.	Number:	7	1	0	0	0	0	8	1.1
	Percent:	88%	13%	0%	0%	0%			
14.	Number:	6	2	0	0	0	0	8	1.3
	Percent:	75%	25%	0%	0%	0%			
15.	Number:	8	0	0	0	0	0	8	1.0
	Percent:	100%	0%	0%	0%	0%			

Table 8. Survey of teachers with 11-20 years experience.

Total Responding: 10 NR=No Response

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	0	10	0	0	0	0	10	2.0
	Percent:	0%	100%	0%	0%	0%			
2.	Number:	1	8	1	0	0	0	10	2.0
	Percent:	10%	80%	10%	0%	0%			
3.	Number:	6	4	0	0	0	0	10	1.4
	Percent:	60%	40%	0%	0%	0%			
4.	Number:	6	3	1	0	0	0	10	1.5
	Percent:	60%	30%	10%	0%	0%			
5.	Number:	0	10	0	0	0	0	10	2.0
	Percent:	0%	100%	0%	0%	0%			
6.	Number:	10	0	0	0	0	0	10	1.0
	Percent:	100%	0%	0%	0%	0%			
7.	Number:	7	3	0	0	0	0	10	1.3
	Percent:	70%	30%	0%	0%	0%			
8.	Number:	2	8	0	0	0	0	10	1.8
	Percent:	20%	80%	0%	0%	0%			
9.	Number:	6	4	0	0	0	0	10	1.4
	Percent:	60%	40%	0%	0%	0%			
10.	Number:	2	8	0	0	0	0	10	1.8
	Percent:	20%	80%	0%	0%	0%			
11.	Number:	7	3	0	0	0	0	10	1.3
	Percent:	70%	30%	0%	0%	0%			
12.	Number:	10	0	0	0	0	0	10	1.0
	Percent:	100%	0%	0%	0%	0%			
13.	Number:	10	0	0	0	0	0	10	1.0
	Percent:	100%	0%	0%	0%	0%			
14.	Number:	9	1	0	0	0	0	10	1.1
	Percent:	90%	10%	0%	0%	0%			
15.	Number:	10	0	0	0	0	0	10	1.0
	Percent:	100%	0%	0%	0%	0%			

Table 9. Survey of teachers with 20+ years experience.

Total Responding: 2 NR=No Response

Question		1 A	2 B	3 C	4 D	5 E	NR	Total	Average
1.	Number:	0	2	0	0	0	0	2	2.0
	Percent:	0%	100%	0%	0%	0%			
2.	Number:	0	1	1	0	0	0	2	2.5
	Percent:	0%	50%	50%	0%	0%			
3.	Number:	1	1	0	0	0	0	2	1.5
	Percent:	50%	50%	0%	0%	0%			
4.	Number:	1	1	0	0	0	0	2	1.5
	Percent:	50%	50%	0%	0%	0%			
5.	Number:	0	0	2	0	0	0	2	3.0
	Percent:	0%	0%	100%	0%	0%			
6.	Number:	2	0	0	0	0	0	2	1.0
	Percent:	100%	0%	0%	0%	0%			
7.	Number:	2	0	0	0	0	0	2	1.0
	Percent:	100%	0%	0%	0%	0%			
8.	Number:	1	1	0	0	0	0	2	1.5
	Percent:	50%	50%	0%	0%	0%			
9.	Number:	2	0	0	0	0	0	2	1.0
	Percent:	100%	0%	0%	0%	0%			
10.	Number:	1	1	0	0	0	0	2	1.5
	Percent:	50%	50%	0%	0%	0%			
11.	Number:	2	0	0	0	0	0	2	1.0
	Percent:	100%	0%	0%	0%	0%			
12.	Number:	2	0	0	0	0	0	2	1.0
	Percent:	100%	0%	0%	0%	0%			
13.	Number:	2	0	0	0	0	0	2	1.0
	Percent:	100%	0%	0%	0%	0%			
14.	Number:	2	0	0	0	0	0	2	1.0
	Percent:	100%	0%	0%	0%	0%			
15.	Number:	2	0	0	0	0	0	2	1.0
	Percent:	100%	0%	0%	0%	0%			

SPELLING TEST STUDY

30

	EXP PRE TEST	EXP POST TST	CON PRE TEST	CON POST TST
1	30	105	30	95
2	50	100	50	95
3	30	105	30	95
4	60	88	60	95
5	70	105	45	100
6	45	100	25	95
7	35	105	65	95
8	40	105	60	55
9	40	100	45	80
10	65	105	45	90
11	35	94	45	100
12	25	100	65	100
13	60	83	40	95
14	55	105	25	80
15	25	95	30	50
16	30	105	35	70
17	20	100	30	65
18	55	95	25	105
19	30	85	5	60
20	30	105	30	75
21	30	105	15	90
22	45	105	45	25
23	20	95	10	95
24	10	95	65	75
25	20	95	15	100
26	5	95	25	55
27	5	105	25	50
28	50	100	35	70
29	35	95	75	100
30	45	105	55	85
31	20	100	50	75
32	35	90	55	70
33	55	100	55	65
34	60	100	35	105
35	20	105	45	100
36	45	105	15	50
37	70	105	35	65
38	70	85	35	95
39	25	100	60	85
40	40	105	55	75
41	10	65	35	90
42	40	85	5	90
43	25	105	45	90
44	20	105	0	105
45	40	105	35	95
46	70	105	25	70
47	50	105	40	80
48	45	105	70	100
49	45	105	35	80
50	45	95	55	95
51	70	105	60	45
52	45	100	50	95
53	10	100	40	100
54	10	90	35	100
55	35	105	30	95
56	5	100	65	55

SPELLING TEST STUDY

	EXP PRE TEST	EXP POST TST	CON PRE TEST	CON POST TST
57	40	80	35	85
58	15	105	0	95
59	15	85	10	65
60	35	90	5	85
61	15	100	35	30
62	15	95	20	90
63	35	90	25	105
64	5	90	20	40
65	10	90	20	60
66	10	60	20	105
67	30	105	20	105
68	45	105	10	70
69	45	100	20	95
70	0	95	20	55
71	40	90	65	100
72	45	105	55	90
73	15	85	50	80
74	25	80	35	80
75	60	100	20	80
76	50	85	40	100
77	30	85	50	70
78	25	90	45	95
79	45	105	60	55
80	30	105	25	75
81			50	90
82			55	85
83			50	90
84			35	75

APPENDIX C

ADDITIONAL TABLES

Table 10. Pretest scores of the experimental group.

Data File: SPELLING TEST STUDY	
Variable: EXP PRE TEST	Observations: 80
Minimum: 0.00	Maximum: 70.00
Range: 70.00	Median: 35.00
Mean: 34.75	Standard Error: 2.02
Variance:	325.89
Standard Deviation:	18.05
Coefficient of Variation:	51.95
Skewness: 0.13	Kurtosis: -0.77

Table 11. Pretest scores of the control group.

Data File: SPELLING TEST STUDY
Variable: CON PRE TEST Observations: 84

Minimum: 0.00	Maximum: 75.00
Range: 75.00	Median: 35.00
Mean: 37.02	Standard Error: 1.94
Variance:	317.54
Standard Deviation:	17.82
Coefficient of Variation:	48.13
Skewness: -0.05	Kurtosis: -0.79

Table 12. Pretest and posttest scores of the experimental group.

Data File: SPELLING TEST STUDY

Independent Samples...

Variable:	EXP PRE TEST	EXP POST TST
Mean:	34.75	97.19
Std. Deviation:	18.05	9.34
Observations:	80	80

t-statistic:	-27.48	Hypothesis:
Degrees of Freedom:	158	Ho: $\mu 1 = \mu 2$
Significance:	0.000	Ha: $\mu 1 \neq \mu 2$

Table 13. Pretest and posttest scores of the control group.

Data File: SPELLING TEST STUDY

Independent Samples...

Variable:	CON PRE TEST	CON POST TST
Mean:	37.02	81.67
Std. Deviation:	17.82	18.75
Observations:	84	84

t-statistic:	-15.82	Hypothesis:
Degrees of Freedom:	166	Ho: $\mu 1 = \mu 2$
Significance:	0.000	Ha: $\mu 1 \neq \mu 2$

Table 14. The experimental group's posttest scores.

Data File: SPELLING TEST STUDY
Variable: EXP POST TST Observations: 80

Minimum: 60.00	Maximum: 105.00
Range: 45.00	Median: 100.00
Mean: 97.19	Standard Error: 1.04
Variance:	87.17
Standard Deviation:	9.34
Coefficient of Variation:	9.61
Skewness: -1.52	Kurtosis: 2.77

Table 13. The control group's posttest scores.

Data File:	SPELLING TEST STUDY		
Variable:	CON POST TST	Observations:	84
Minimum:	25.00	Maximum:	105.00
Range:	80.00	Median:	87.50
Mean:	81.67	Standard Error:	2.05
Variance:		351.41	
Standard Deviation:		18.75	
Coefficient of Variation:		22.95	
Skewness:	-0.89	Kurtosis:	0.11

APPENDIX D

ADDITIONAL FIGURES

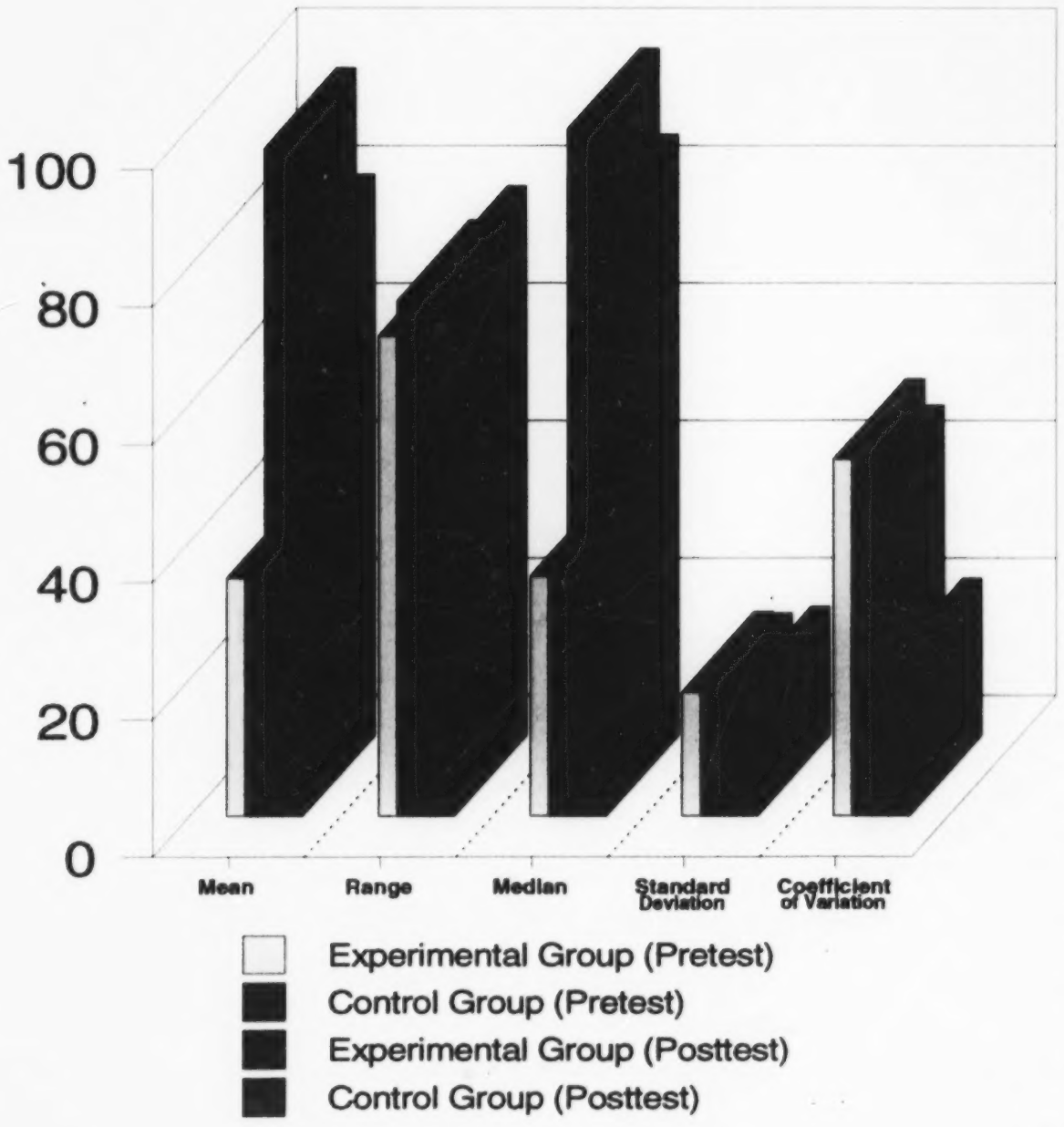

Figure 1
A comparison of pretest and posttest scores.

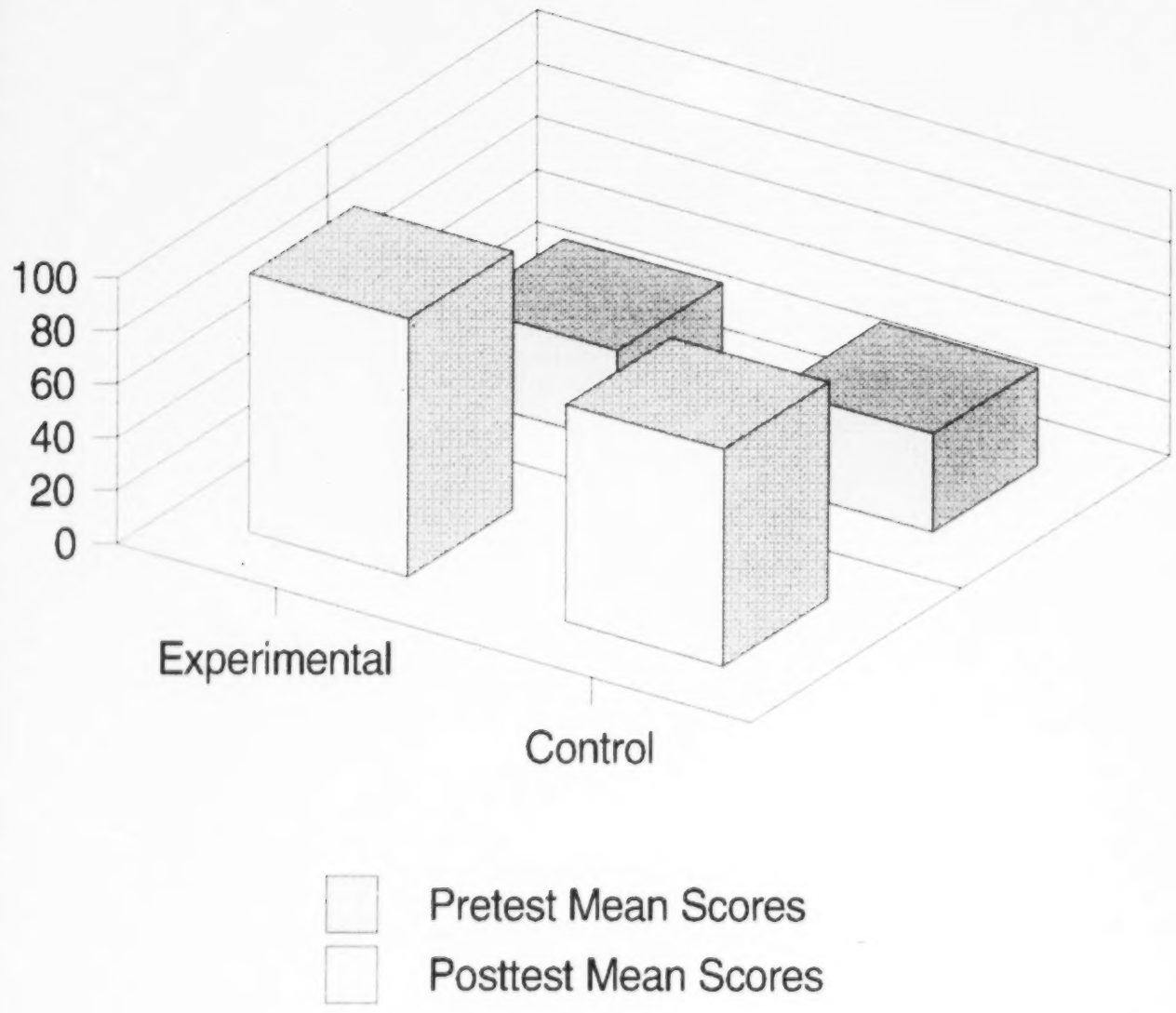

Figure 2
A comparison of pretest and posttest mean scores.

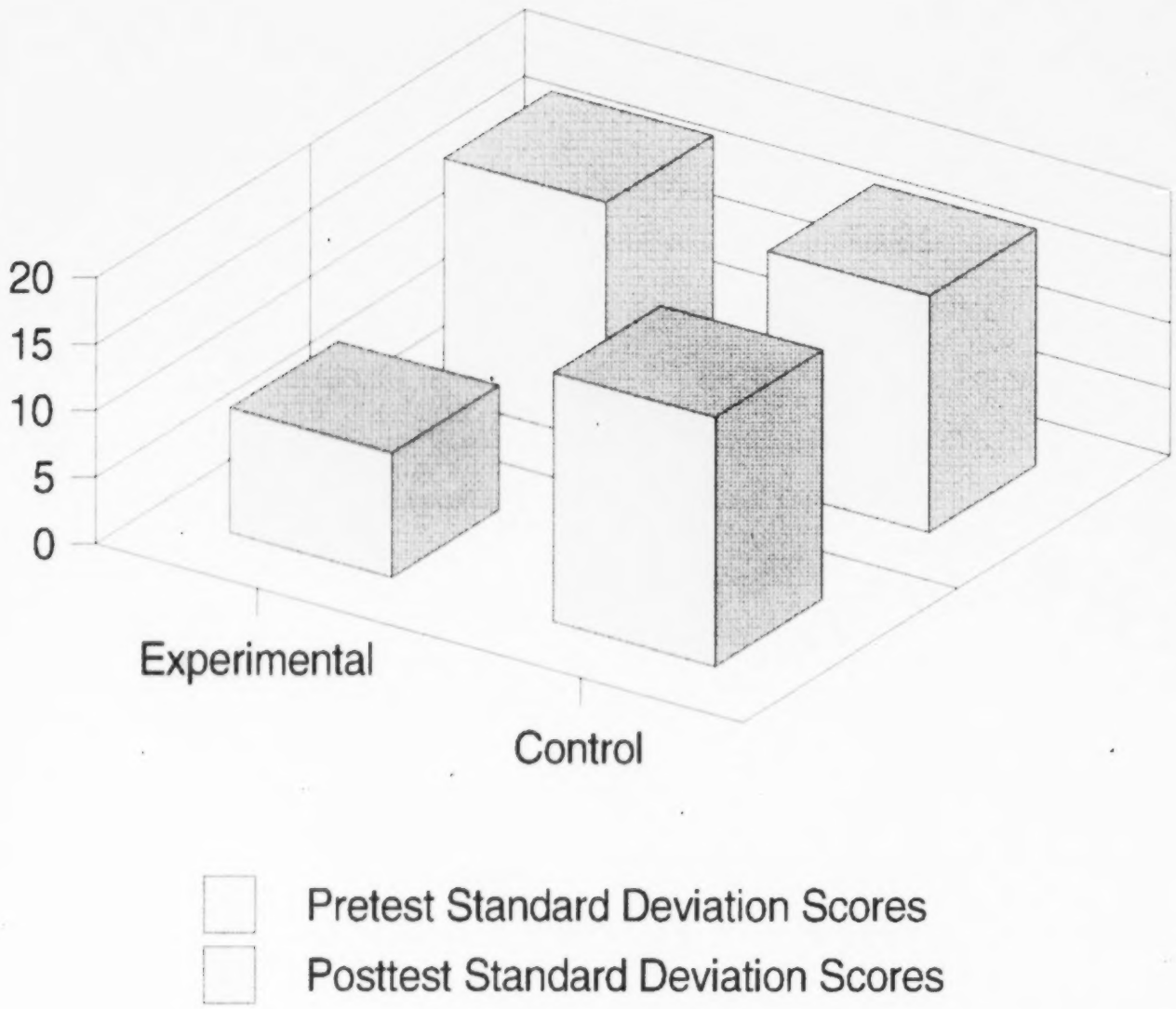

Figure 3
A comparison of pretest and posttest standard deviation scores.

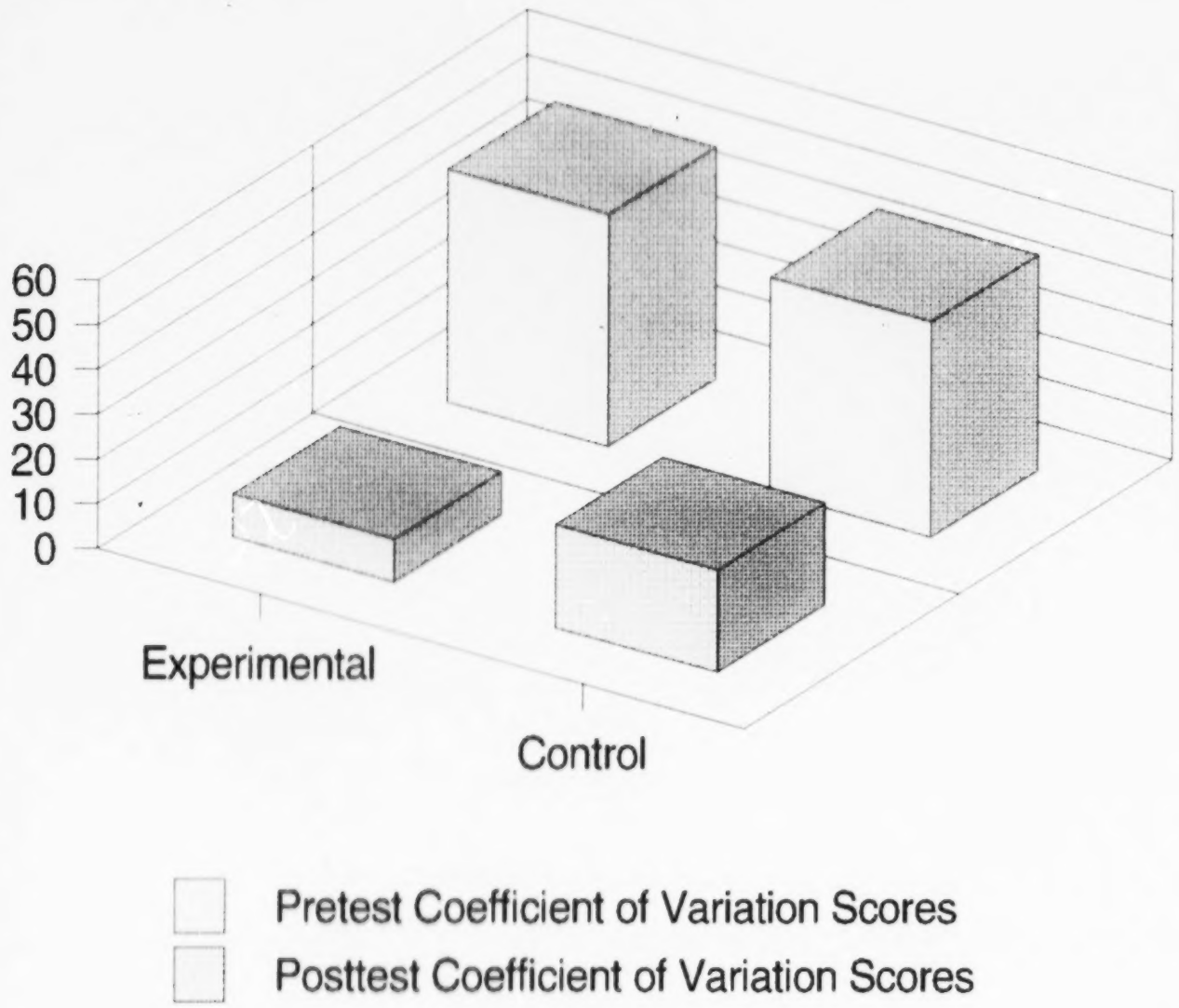

Figure 4
A comparison of pretest and posttest coefficient of variation scores.

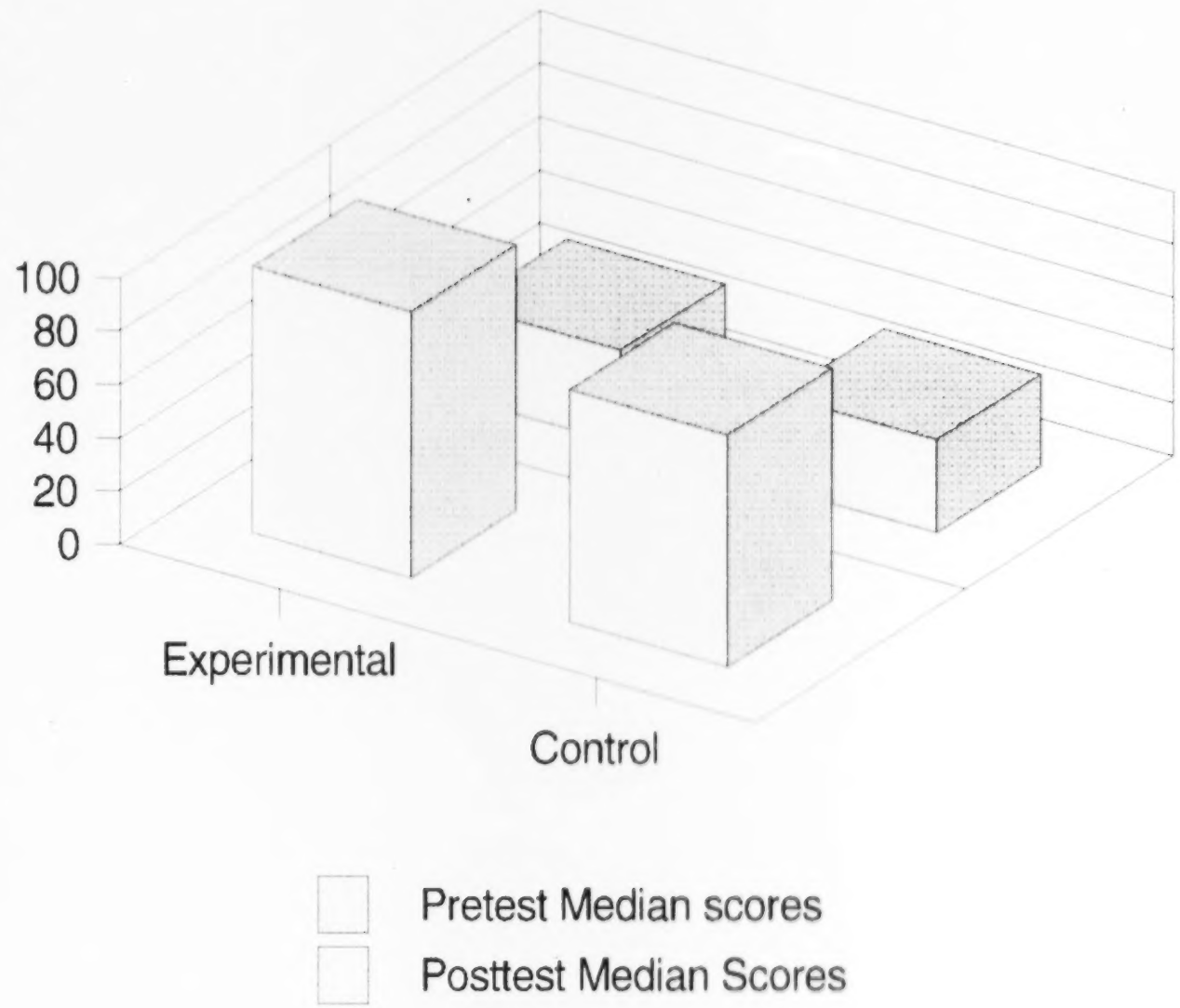

Figure 5
A comparison of pretest and posttest median scores.

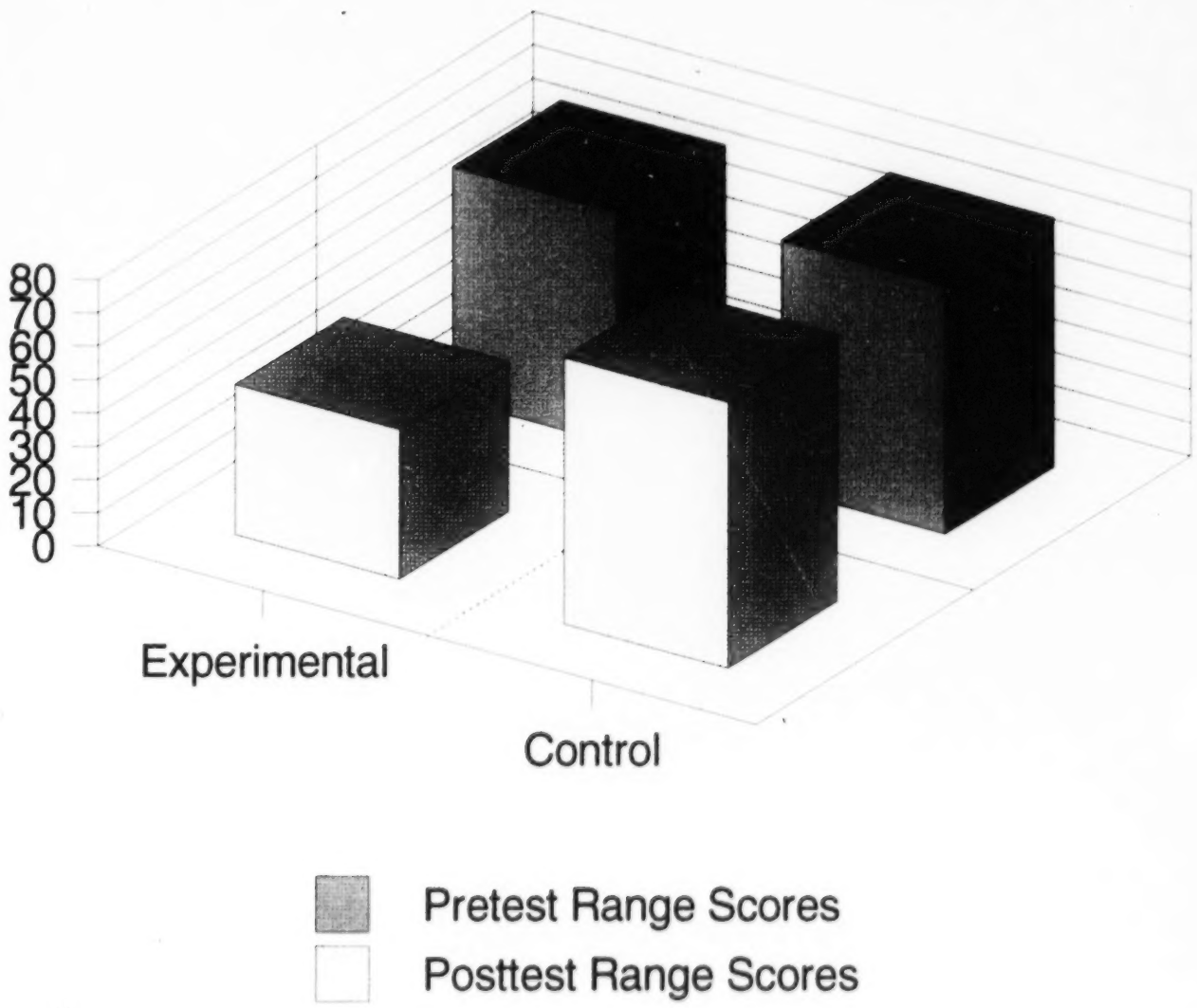

Figure 6
A comparison of pretest and posttest range scores.

APPENDIX E

SPELLING WORD LIST

Spelling Word List

Week 1

brim
friend
furious
grin
present
smile
spot
sweet
swim
trouble
against
swamp
snack
friendliest
staying
grinned
horrible
flames
scream
*Apatasaurus

Week 2

another
bug
but
cut
done
fun
month
much
scissors
some
chalk
hugged
from
rubbed
Sunday
was
cutting
puzzled
material
*beautiful

Week 3

cake
make
may
once
paint
pay
rain
raise
tall
they
apron
ahead
birthday
gave
tamales
artist
scene
Texas
Mexico
afternoon
*watermelon

Week 4

ashamed
clever
father
finish
should
show
shut
their
them
thought
bushes
anything
there
nothing
shame
empty
courage
choose
received
Emperor
*impossible

Week 4

better
brook
color
dinner
doctor
flavor
never
supper
sugar
fire
water
soldiers
sir
carefully
taste
guest
spare
perfect
aren't
*gracious

Week 6

cover
delight
find
fly
lie
light
night
sky
why
brilliant
delighted
disappear
sunlight
highest
grapefruit
climbed
escaping
like
nighttime
*conversation

*BONUS WORDS